HARMONY GROVE VILLAGE

APPENDIX L

FIRE PROTECTION PLAN

VTM 5365; GPA 04-04; MUP 04-012, MUP 04-013, and MUP 04-014;
REZ 04-010; SP 04-03; Log No. 04-08-011; SCH No. 2004071004

for the

DRAFT ENVIRONMENTAL IMPACT REPORT

AUGUST 2006

FIRE PROTECTION PLAN

FOR

HARMONY GROVE VILLAGE

May, 2005

CASE NUMBERS:
SP 04-03; REZ 04-010; GPA 04-04; VTM 5365; S05-004; P04-012; P04-013; P04-014;
LOG NO. 04-08-011; SCH # 2004071004

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APPENDIX:

1. INTRODUCTION:

This document is intended to serve as a Conceptual Fire Protection Plan for the Harmony Grove Village Specific Plan ("Development"). This plan is required by the Elfin Forest Harmony Grove Voluntary Fire Department - CSA 107 (EFHGVFD) and the County of San Diego DPLU Fire Service Coordinator. This plan responds to the requirements of Article 86 of the 2001 California Fire Code, which requires a Fire Protection Plan for all new development in the Urban Wildland Interface areas. In addition, it fully complies with the San Diego County Consolidated Fire Code and the International Urban Wildland Interface Code.

2. PROJECT DESCRIPTION:

The Harmony Grove Village is a for-sale, single family detached development on property previously used for dairy and egg ranching. It is situated within the unincorporated portion of San Diego County, west of Escondido and south of the City of San Marcos. The entire development will ultimately be within Elfin Forest Harmony Grove Village Fire Department - CSA 107 (EFHGVFD). The Development applicant and the EFHGVFD are currently working towards an agreement for the provision of firefighting services and facilities for the Development.

Currently, the predominant vegetation is grass (fuel model 3) and Coastal live oak woodland. Majority of the site has been heavily disturbed from agricultural operations and uses.

The site topography comprises of hills and flat valley floor lands. It includes oak woodland, avocado groves, the site of a former dairy ranch and two egg ranches. The elevations on site range from 560' to 900'. Approximately 50% of the site is less than a 15% slope and almost 75% of the site is less than 25% slope.

Average maximum summertime high temperature is 90 degrees Fahrenheit. Extreme maximum in September/October is 95 degrees F. Average wintertime high is 70 degrees F. Data is from the NWS, Escondido site #2.

The Development totals 468 acres and is divided into 4 planning areas that comprise of 742 homes, small scale office and retail, parks, open space and institutional uses:

Uses within each planning area are as follows:

- Planning area 1- "Village Center": 210 acres, approximate minimum residential lot size is 2200 sq ft. Other uses include small scale office and retail, institutional, public uses/facilities, parks, pools, multi-use trails and recreation.
- Planning area 2- "The Hillsides": 138 acres, approximate minimum residential lot size is 6500 sq ft. Other uses include equestrian boarding facility, parks, pools, multi-use trails and recreation.
- Planning area 3- "The Groves": 84 acres, approximate minimum residential lot size is 10,000 sq ft. Other uses include parks, pools, multi-use trails and recreation.
- Planning area 4- Equestrian Ranch: 36 acres, includes facilities for boarding, training and showing horses. A total of 3 residences will are planned within this planning area.

Summary:

The planning areas include 742 residences ranging from 1 to 3 stories (36' Max.) in height - commercial, institutional, equestrian facility, multi-use trails, parks/recreation, pools and open areas. A fire station site is planned near the southwest corner of Harmony Grove Road and Village Road intersection. Lots range from approximately 2200 sq ft to 2 acres in size. Estimated

residential population is 2968 persons (based on estimate of 4 persons per unit[1]). The Development contains parks for unstructured play and events as well as parks intended for equestrian use. A network of multi-use trail system within the project provides equestrian, hiking and biking opportunities throughout the Development as well as connections to key County trails beyond the boundaries of the Development.

3. FIRE DEPARTMENT RESPONSE:

The Development will ultimately be served by the Elfin Forest Harmony Grove Fire District (EFHGVFD). The following table summarizes key information regarding the existing fire station located in Elfin Forest, which would respond the Development:

Station #	Location	Total volunteer Staffing	Equipment	Miles and driving time to Wilgen and Harmony Grove
1	20223 Elfin Forest Road	26	1. 1500 GPM Type 1 structure engine (year: 2000). 2. 1985 Medium Rescue truck; 1250 GPM 3. 2004 type 3 brush engine; 750 GPM 4. 1979 type 3 brush engine; 500 GPM 5. 1987 BLS ambulance. 6. 2000 command Vehicle. 7. 2004 Utility truck. Largest ladder= 24’	7 minutes/3.6 miles

The total response time from notification of an emergency, per the EFHGVFD Fire Chief, is 13 minutes for the first fire engine: 6 minutes for volunteers to respond to station, and 7 minutes to drive to site. The Fire Department currently serves 1800 permanent residents. The Harmony Grove Village may have a population as many 2968 residents (based on an estimate of 4 occupants for each of its 742 units). This population projection is used strictly in assessing potential number of daily/annual emergency calls from the Development and should not be misconstrued for use in assessing any other impacts (i.e. traffic, noise, air quality, etc).

[1] “4 persons per unit” estimation is used strictly for projecting “Total daily/annual emergency calls” as discussed in Section 3.

Station #	Total current daily/annual calls for the EFHGVFD	Estimated daily/annual calls generated by this Development	Total estimated daily/annual calls
1	.27/day = 101per year. Over half the calls are for medical emergencies and traffic accidents. 2% of all calls are structure fires, 6% vegetation fires, and 6% other types of fires. Per capita call generation is .056 per person	.056 X 2968 = .45 calls per day or 166 per year	.70 per day/255.5 per year

Above data reflects the nearby community profile. The nearby community is mostly upscale and the development will be similar in profile. Therefore, use of this local data is considered more accurate than data from another community. As indicated by the table above, the resulting estimates show that the Development should not generate a significant number of emergency calls. The estimated emergency call generation is less than 1 call every 2 days.

The current (prior to development of Harmony Grove Village) staffing is adequate to support a fire in a sprinklered building. It is also adequate for a Non-Advanced Life Support (Non-paramedic) medical emergency, however response times are excessive. There is no paramedic level service from the EFHGVFD to the Development area at this time. The Fire Department provides Basic Life Support (BLS).

The response resource is adequate for a small vegetation fire with no wind. However, the response time is excessive. It is not adequate for a significant vegetation fire in fire weather conditions with wind. In that case, additional Fire agencies, including from San Marcos, Escondido, Vista, and the California Department of Forestry (CDF) would be dispatched.

The first alarm response to a vegetation fire within the Development area would comprise of 3 fire engines from EFHGVFD, 2-3 equivalent vehicles from neighboring fire departments, 2 hand crews, and air attack from CDF.

The first alarm response to a structural fire would be 5 fire engines with 3 firefighters each within 15 minutes, per EFHGVFD Fire Chief. This would total 15 firefighters plus the Fire Chief.

FIRE STATION:

The primary issue regarding response to this Development is the excessive response time and distance from existing fire station to the furthermost point in the Development. The distance exceeds national insurance industry standards (1.5 miles) and national response time standards (4 minutes driving time to 90% of all calls). The national standard is to arrive at 90% of all structure fires in 4 minutes driving time. However, the Development will not generate a significant number of emergency calls. With the fire protection proposed, most calls will be medical emergencies.

Based on the response time to the site from the current station, a fire station on or adjacent to the project site is required. Discussions regarding the full fire mitigation package are currently on-going between the Development applicant and the EFHGVFD. The final fire mitigation agreement will become part of the project conditions of approval.

4. FIRE HISTORY:

There is no known significant fire history on site. In recent history, the Del Dios fire and the Harmony Grove fire did not reach the proposed Development site. However, the Del Dios fire came close to the southern edge of Harmony Grove Road.

5. RISK ASSESSMENT/FIRE SPREAD MODELS:

BEHAVE fire spread models were generated by Scott Franklin, an Urban Wildland Fire Management Consultant. The following input was used. Inputs are partially based on actual information received regarding conditions at the Harmony Grove fire of 10/21/96. However, actual 20' winds were reported at 30 MPH and air temperature at 80 Fahrenheit. In comparison, the 20' winds during the cedar fire of 10/25/03 recorded at the San Miguel RAWS site were 24 MPH.

1 hour fuel moisture (FM): 2%
10 hour FM: 2%
100 hour FM: 3%
Live fuel moisture: 55%
20 ft wind speed: 50 MPH
Air temperature: 95 degrees F
Slope 0: most structures are down slope from fuel
Ridge to valley difference: 230'
Weather data from National Weather Service; San Diego; Escondido Site #2

Outputs of the models:

Fuel Model 1: Grass 2' high:
Rate of spread: 8 MPH
Flame length: 13'
Spotting distance: 1.0 mile

Fuel Model 3: Grass 3' tall
Rate of Spread: 9 MPH
Flame length: 36'
Spotting distance: 2.1 miles

Fuel Model 4: Heavy southern mixed chaparral:
Rate of spread: 17 MPH
Flame length: 83'
Spotting distance: 3.7 miles

Fuel Model 8: Properly maintained oak leaf understory or chipped biomass:
Rate of spread: 0 MPH
Flame length: 2.6'
Spotting distance: .3 miles

FM 18: Coastal sage scrub:
Rate of spread: 3 MPH
Flame length: 41'
Spotting distance: 2.3 miles

The worst-case fire spread model is Fuel Model 4, which is heavy chaparral. The worst case wind driven fire in a Santa Ana condition will come from the North / Northeast on to the Development. This would spread into the chaparral. Fire could then spread from chaparral into other on site vegetation, including the avocado groves. Another potential is the route taken by the previous Del Dios fire, which was from the South. That fire turned towards west just south of Harmony Grove Road due to wind and topography. The third potential is a fire coming from the direction of the ocean onto the west portion of the Development. This type of fire would approach toward the development headed down-slope.

6. DEFENSIBLE SPACE AND VEGETATION MANAGEMENT ZONES:

Based on fire history, fire risk assessment and on-site inspection, review of maps/aerial photos, and generation of the BEHAVE models, the following vegetation management requirements are provided with the objective of protecting structures from ignition caused by a vegetation fire. These recommendations apply to all properties on which there are structures. The zones begin at the structure and extend out on all sides towards the unmodified wildland vegetation. Vegetation Management Zones must be implemented at the time of construction commencement and shall be maintained annually, prior to May 1, on an ongoing basis and as necessary for appropriate fire safety. Three zones (A,B and C) comprise the required Vegetation Management Zones.

The total depth of the Vegetation Management Zone on any given lot on hillsides or along the perimeter directly facing wildland, grasslands, open space, oak woodland, groves, or retention basins, parks, etc, will be 100', as required by the Fire Code. Within this 100' zone, a combination of irrigation, thinning, clearing and house construction methods/materials will be employed to achieve compliance based on this Fire Protection Plan and approval by the County Fire Marshal.

Interior lots having no exposure to wildland areas, no hillside slope and no exposure to open space, retention basins, parks, etc, will also be subject to a 100' Vegetation Management Zone, or the entire lot if the 100' is not available. These interior lots are given different criteria compared to the perimeter lots for tree spacing and plating materials based on specific guidelines outlined in this Fire Protection Plan. Also, as a dominant feature in the project landscape, there will be a 40' Vegetation Management Zone between structures and the riparian channels.

In addition to the prescribed zones for private lots, the entire perimeter lots on the north end of the site shall be maintained fire safe by mowing, pruning, limbing, and removal of flammable vegetation, so as to provide continuity from the perimeter buffer zone to the private lot zones. Refer to the Vegetation Management Zone map in the appendix of the Fire Protection Plan.

The result is that the entire Development, and all perimeter lots (facing wildland areas, oak woodland, groves, open space, retention basins, parks) will have a Vegetation Management Zone around them.

Whenever possible, building pads will be located with the objective that Vegetation Management Zones will be confined to the affected lot. Where possible, Vegetation Management Zones will be contiguous with adjacent Vegetation Management Zones. If zones extend beyond private lots, the Homeowners Association or other responsible entity, will be responsible to assure that the vegetation management requirements of this plan are implemented within the Development boundary. It is understood that Vegetation Management Zones cannot legally extend beyond the Development, or the private lot, without an easement. A Homeowners Association must be created to assure that the requirements in this plan are implemented on an initial and ongoing basis throughout the Development on homeowner lots and common areas.

A. Criteria for Vegetation Management Zones:

1. Zone A: Irrigated Wet Zone (0-30' or entire internal lot if less than 30' to adjacent lots):

The 30 feet closest to the structure is critical for fire safety. The planting material/spacing and structural accessories within this area need to be properly selected for fire resistance, properly placed, and well maintained in order to provide fire safety and limit the possibility of transmission of fire to the house from the surrounding landscape. No undesirable plant materials (see list in this plan) are allowed in Zone A. No dry grasses are allowed in Zone A.

Ground cover, bedding plants, shrubs and flowers must be fire resistive, drought adaptive, low profile, low dead to live fuel ratio, high leaf moisture, low fuel volume, low oil content. Dry grass is to be less than 3" but, irrigated grass may be over 3" high.

Decks, Patio covers, furnishings, fences and accessories shall be non-combustible, a minimum of 1-hour rated or heavy timber construction and shall meet County Building and Fire Codes. No firewood, propane tanks (other than small barbecue tanks) or other flammables may be stored in this zone. Leaf litter should be removed from the roof and rain gutters of the structure every year before fire season.

Plants in this area need to be the slowest to ignite and should produce the least amount of heat if they do burn. This can be pursued through proper placement, irrigation and maintenance of fire resistive, low profile plant materials.

Do not plant trees within 10 feet of the structure, and remove any branches overhanging the roof. Allow at least 10 feet between a tree and a chimney.

Landscape plants shall be arranged in a mosaic so as not to create pathways for a fire. For example, trees and shrubs can be planted in distinct groups, spaced so that the branches of each group won't touch when fully grown. The spaces between each group should contain low ground cover or mulch to reduce erosion and eliminate weeds and non-native grasses. Single specimen trees, and tree groups of no more than 3 trees, are allowed, but shall be spaced 30 feet between groups or individual trees. Shrub groups shall be spaced 15 feet apart.

The performance objective is to limit the potential for a fire in vegetation to spread from open space or beyond a private lot to a structure, by controlling the type of vegetation present and by eliminating unbroken fuel beds and paths for a fire to spread through vegetation, trees, or from plant to plant, etc.

Foundation plantings are allowed, but any plants placed at the foundation must be irrigated, fire-resistant species, no higher than 18 inches and well maintained. Limit or eliminate planting beneath windows, near doors, and under roof vents.

In order to limit the possibility of flames climbing into an over story of trees and shrubs, fire ladders must be minimized. Lower tree limbs shall be removed up to 6 to 10 feet. Avoid planting shrubs under trees. No hedges, of a plant material prohibited in this plan, are allowed in Zone A

Plantings in Zone A may be drought resistant, but must receive irrigation to increase their moisture content and decrease the dry or dead fuel loads. Additionally, plantings in Zone A must be maintained continuously throughout the year. No dead or down material is allowed within this zone. All plants must be trimmed as necessary to retain proper spacing.

2. Zone B: Irrigated Low Fuel Volume Zone (30' out to 100' or to perimeter of private lot if less than 100' to edge of lot):

Ground cover, bedding plants, shrubs and flowers must be fire resistive, drought adaptive, low profile, low dead to live fuel ratio, high leaf moisture, low fuel volume, low oil content, high leaf moisture. Dry grass to be less than 3", but irrigated grass may be over 3" high.

No undesirable plant materials (see list in this report) are allowed in Zone B.

Single trees and groupings of no more than 3 trees shall be spaced 20' between mature canopies. Provide 20' between shrubs and trees. 30' spacing shall be employed on hillsides and along the project perimeter.

Provide 10' between shrub canopies and 10' between plant canopies. 15' spacing shall be employed on hillsides and along the project perimeter.

Break up continuous fuel beds. Separate, limb up, and prune all vegetation. Remove all down and dead fuels. Remove dead fuel component from live vegetation. Break up any contact between ground fuels and aerial (tree) fuels.

Remove all flammable and dead or diseased vegetation on private lots, including any dead orchards, vineyards and groves. Existing, live, avocado or citrus grove trees will be limbed up to 5' above ground, and all flammable vegetation under canopy removed, out to 10' beyond edge of drip line. Chipped biomass or mulch can be left under trees if irrigated. Groves shall be irrigated at all times, or removed.

Properly sized chipped biomass (1/4" to ½" diameter by 4" to 6" long by 4" deep, with no manure added) may be installed and maintained in landscaped areas 30' and beyond from any structure. The objective is to convert the vegetation to a Fuel Model 8 (slow burning, low heat release fire) and to preclude exotic grasses from regenerating.

3. Zone C: Dry, Non-irrigated Thinning and Transition Zone (Beyond 100' from structure out to property line on north end of Development):

Zone C is a non-irrigated thinning and transition zone, which begins at 100' from the structure. Refer to the Vegetation Management Zone map in appendix of Fire Protection Plan for total prescribed distances of Zone C. These areas, if beyond the boundary line of the Development, will require a maintenance easement from applicable neighboring property owner(s). If such arrangement cannot be reached, mitigation measures may include 1-hr. rated construction methods and materials to the approval of DPLU Fire Marshal

No recommendation in this fire protection plan authorizes construction or brush clearing to a standard less than the County Building and Fire code requirements.

Existing Grove tree management in Zone C shall be the same as that described in Zone B. Zone C in this plan is intended to describe management of areas of unimproved native vegetation that may lie between the edges of improved grove trees and the North property line.

In Zone C significantly separate, thin, limb up and prune all existing flammable vegetation. Break up any continuous fuel beds. Remove all dead fuel from vegetation. Limb up trees to 1/3 their height or 6'. This will break the contact between ground and aerial fuels (remove ladder fuels). Provide 20' between large shrubs and trees. Utilize same spacing for trees as recommended for Zone B for hillsides and perimeters (30' between mature tree canopies). Break up mature tree canopies in order to create adequate separation between mature tree canopies as specified in this plan.

No undesirable plant materials (see list in this report) may be planted in Zone C unless otherwise addressed herein. Single specimens of manzanita can remain if properly spaced and maintained. Some types of chaparrals may remain if properly spaced and maintained (properly spaced mosaics may be created) with no dead fuel component. Up to 40% of native brush can remain if properly maintained and separated with no dead fuel component. Separate any mosaics of flammable brush. Spacing between any new plantings of bushes, shrubs and plants to be the same as recommended for Zone B. Remove all thinned, pruned, and dead debris from the property. Mow or weed whack grasses to 3". A certain amount of naturally occurring vegetation in Zone C is needed to help maintain erosion control, soil stability, but must be thinned, modified, kept to a low height, well spaced, and maintained. Shrubs are to have a low profile to limit flame height and fire spread.

It is recommended that each entire perimeter private lot be maintained in a fire safe condition by limbing, pruning, cutting and removal of flammable vegetation to help prevent fire spread from open spaces or off site to homes.

B. Equestrian Facilities:

Fuel Modification Zones are also required at the equestrian centers around all buildings and around perimeter. Such zones shall be 100'. The same recommendations for vegetation management as above (Zones A, B and C) apply to the equestrian facilities. This includes type and spacing of trees. Pastures and other open space areas within equestrian areas are to be maintained to eliminate uncontrolled growth of dry grass.

C. Vegetation Management on Sides of Roads and Street Trees:

All roads adjacent to slopes in the Development will have vegetation clearance of flammable vegetation (such as weeds, natives or any undesirable plants) on 10' of each side, or 50' on each side in some cases as noted in the Vegetation Management Zone Map or current County Fire Code, which ever is greater.

Roadside Vegetation Management Zones shall be cleared of flammable vegetation including flammable shrubs and trees, and/or planted and irrigated with fire-resistant plants and trees. Trees shall not be of a type prohibited in this plan. No overhanging canopies. No unbroken canopies, except in groups of 2 to 3 trees with 20 feet of clearance from mature canopies of other street trees or groupings. Grass shall be mowed to 4". Single specimens of trees as well as groups of 2 to 3 trees, fire resistive shrubs, or cultivated ground cover such as green grass, ivy, succulents or similar plants used as ground covers may be used, provided they do not form a means of readily transmitting fire.

D. Vegetation Management on Sides of Trails:

Vegetation Management is required on the sides of all equestrian and hiking trails, out to 10' on each side, or out to limits of the common lot line, if trail is within a common area lot. Flammable vegetation (such as weeds, natives or any undesirable plants) must be removed, except for that needed for soil and slope stability and to prevent erosion. Grasses must be kept mowed to 4" or less. Trees may be planted or remain if they are not prohibited on the list in this plan. Trees must be properly spaced and limbed up with no flammable understory.

E. Planting of Detention Basins and Riparian/Creek Channels:

Detention basins and creek channels will be biological buffer zones and are not allowed by resource agencies to receive vegetation management. Therefore detention Basins and Channels shall be planted with appropriate riparian species to encourage a full canopy that will discourage undergrowth. No plant specie from the prohibited list in this Plan shall be used. Basins and channels shall be at least 40' from structures.

F. Vacant Parcels:

Lots that are vacant will not be required to have vegetation management until lumber or other combustible materials are delivered onsite unless such vegetation management is necessary to protect structures on adjacent parcels.

At the time the flammable construction materials are delivered onsite, the flammable vegetation shall be reduced by 60% on the lot and grass is to be mowed to 4". Enough vegetation must be left to prevent erosion and soil instability. Additionally, dead fuel, ladder fuel (which can spread fire from ground to trees) and downed fuel shall be removed and trees/shrubs shall be properly limbed, pruned and spaced per this fire protection plan.

G. Common areas:

Vegetation Management Zones will extend onto neighboring onsite lots and common areas. Zones may join each other, on adjoining onsite parcels, as long as the intent to provide vegetation management zones beginning at each structure, and extending in all directions, as required, is complied with. The HOA, or other responsible entity, shall assure that vegetation management is implemented on an ongoing basis in these areas, and in the perimeter buffer zone in accordance with the Vegetation Management Map.

H. Environmentally Sensitive Areas/ Riparian Areas:

In areas which may be environmentally sensitive due to habitat, cultural sites, riparian areas, biological buffer zones. Permission will be needed from the County of San Diego DPLU and the resource agencies (i.e., State Fish and Game and Federal Fish and Wildlife) prior to any vegetation management.

I. Oak Woodland:

The Oak woodlands are biological buffer zones where the resource agencies will not allow any fuel modification to be done. Therefore, any homes within 100' of the Oak Woodland boundaries shall receive additional fire protection measures to the satisfaction of the County Fire Marshal. Examples of additional measures that may be considered to mitigate for a less than 100' fuel modification buffer include but are not limited to: six foot solid block walls where applicable, one-hour rated exterior walls and tempered glass on the side of residential structure facing the Oak Woodlands, boxed eaves, vents facing away from woodland, remote supervision of fire sprinklers, exterior sprinklers (designed per NFPA 13, Chapter 7.7) and fire rated glazing such as Firelite UL listed glazing (to meet County Building and Fire Code) and a minimum of 50' clearance from residential structure to Oak Woodland boundary. The entire lot shall be a vegetation management zone. The performance objective of the enhanced protection is to prevent structural ignition if the oak woodland ignites.

J. Riparian/Creek Channels:

Any vegetation, trees, or understory, planted in the creek or channels shall be of a high leaf moisture type and shall not create a means to spread fire from ground vegetation into any trees. Vegetation, including trees, shall not be of a type prohibited by this plan. It is contemplated by the developers that oaks, sycamore, mule fat and toyon will be planted in the channels and the mature canopy of riparian trees will minimize flammable under story or down and dead fuels. The creek is determined to be a riparian biological habitat zone and not a fuel modification zone. Permission will be needed from the resource agencies to perform any fuel modification or vegetation removal in this area. There shall be 40' distance between a residential structure and

the creek channels. (Refer to Vegetation Management Map (Item 2 of Appendix). With the exception of street trees in the Public Right of Way which will be planted in accordance with the County Street Tree Ordinance (no trees from the prohibited list in this plan), this 40' wide area shall be irrigated and planted and maintained in the same manner as Vegetation Management Zone A.

K. Alternative Methods:

The Developer, POA, or private lot owner may submit a site specific risk assessment and detailed vegetation management plan to the County Fire Marshal for approval, proposing alternative methods of fire protection and providing justification for less than the recommended vegetation management zones, if there is a practical difficulty, or environmental constraint, in providing the entire size of the necessary vegetation management zone.

In any area where the required 100' Vegetation Management Zone cannot be obtained, the structure shall have basic and enhanced fire resistive construction per Section 26 of the County Fire Code; dated 8-14-04, and other recommendations. This will include, but is not limited to; fire sprinklers, 1 hour rated exterior construction, boxed eaves, tempered glass or tempered double pane, 20 minute fire rated front doors, no vents facing wildland area, and on private lots, a 6' high solid masonry wall will be provided on the property line.

L. Undesirable Vegetation and General Vegetation Management Guidelines:

Certain vegetation is considered to be undesirable in the landscape due to characteristics that make them highly flammable. These characteristics can be physical or chemical. Physical properties that contribute to high flammability include large amounts of dead material retained within the vegetation, rough or peeling bark, and the production of large amounts of litter. Chemical properties include presence of oils, resins, wax, and pitch. Any such existing vegetation should be removed and new ones should not be introduced.

Chamise (Adenostema spp)
California coast Sage brush (Artemisia californica)
Sage (Salvia sp)
Common buckwheat (erogonum fasciculatum)
Coastal Sage Scrub
Laurel Sumac
Manzanita (Arcostaphylos spp.) Except single species and specimens properly located and spaced may be allowed in Zone C.
Coyote bush (Baccharus spp)
Artichoke thistle
Castor bean plant
Wild artichoke
Black mustard
Milk thistle
Russian thistle/tumbleweed
Indian tobacco
Tree tobacco

Prickly lettuce
Horseweed
Telegraph plant
Mayweed
Burning nettle
Noary cress, perennial peppergrass
Wild turnip, Yellow mustard, Field mustard
Red Shank
Bougainvillea (may be used in other than Zone A if properly maintained, height restricted, and dead fuel removed twice per year)
Mahonia
Scotchbroom

Some undesirable ornamentals include:

Pampas grass
Cypress
Cedar
Eucalyptus
Juniper
Conifers (pines etc.)
Cedar
Acacia
Palms
Pepper trees (Acceptable in streetscapes or trails and as single specimens in park areas, if properly limbed, maintained, irrigated, on 40'centers, and no flammable vegetation underneath, no canopies over roads.)
Periwinkle (except vinca minor; dwarf periwinkle)
Camphor tree (Acceptable in streetscapes or trails if properly limbed, maintained, irrigated, on 40'centers, and no flammable vegetation underneath, no canopies over roads.)
Bottlebrush
Olive tree (Acceptable outside of fuel modification zones as single, widely spaced, irrigated specimens, properly limbed up with no flammable vegetation underneath)
Chinese elm (Acceptable in streetscapes or trails if properly limbed, maintained, irrigated, mature canopies can touch, and no flammable vegetation underneath, no canopies over roads)

UNLESS ALLOWED IN INDIVIDUAL TEXT ABOVE, DO NOT PLANT, OR RETAIN, ANY OF THE ABOVE LISTED VEGETATION IN ANY VEGETATION MANAGEMENT ZONE OR IN ANY MEDIAN, PLANTER OR OPEN SPACE. DO NOT USE ANY OF THE ABOVE LISTED TREES OR SHRUBS AS STREET TREES OR SHRUBS.

FINAL PLANT PALETTE SHALL BE REVIEWED BY COUNTY LANDSCAPE ARCHITECT IN COORDINATION WITH COUNTY BIOLOGIST AND BE TO FIRE MARSHAL APPROVAL.

PLANTING, SPACING AND MAINTENANCE GUIDELINES:

General Information:

A. Make all measurements on the horizontal straight out from structures, rather than down the slope.
B. Maintenance includes irrigation and annual removal of weeds, dead materials, and other undesirable flammable vegetation required to keep the area fire safe.
C. As new plantings mature, they must be thinned to maintain the recommended spacing and heights.
D. The terms "fire resistant", "fire retardant" or fire-wise can be misleading. All vegetation and plants will burn if exposed to enough heat. Because something is considered fire retardant, fire resistant or fire-wise does not mean that unlimited quantities can be planted or that they will somehow slow down a fire.
E. Limit or eliminate use of plants, which are known to be specifically flammable (anything can burn given enough heat).
F. Limit use of plants which develop large amounts of foliage, branches, or dead material.
G. Limit use of plants which develop deciduous or shaggy bark.
H. Limit use of plants which develop dry or dead undergrowth.
I. Large Shrubs and plants should be spaced 10' between mature plant canopies and 10' between mature shrub canopies. (15' in Zone "A", on Hillside slopes and along project perimeter)
J. Keep shrubs 10' from drip line of trees.
K. Configure plantings so that they are spaced and maintained so as not to create a direct path from native growth to a structure.
L. Do not use bark or chipped biomass in Zone A, unless it is kept wet (such as in an irrigated planter bed).
M. All plant species must be limited to those approved by the Fire Department for this area.
N. Prohibit massing of vegetation adjacent to structures, especially under eaves, overhangs, windows, vents, decks, etc.
O. Vegetation Management requirements and the requirements for continuous maintenance must be documented in the private lot deed encumbrances, CCR's and in other legal documents and disclosures at time of sale. It must be made absolutely clear to homeowners that they have a legal responsibility to maintain a fire safe defensible space on all sides of the structures in compliance with this plan and the County Fire Marshal. The HOA shall enforce all vegetation management requirements, and structural protection requirements on all private lots, common areas, buffer zones, streets, trails, open space, parks, retention basins equestrian center, and enforce vegetation management requirements in Zone A, B and C.
P. Yearly maintenance, before fire season (typically May 1, including during construction) is required to reduce fuel volumes, eliminate weeds, remove dead vegetation, cut grass, limb up and prune trees and shrubs, remove down and dead fuels, remove flammable under story, etc.
Q. Maintenance is also required after any storms or high winds to remove down and dead vegetation and combustible debris from properties and zones.
R. If new planting is desired in areas of retained native vegetation, then an irrigation system should be designed to sustain new plantings as needed. Caution should be used so as to

not over irrigate natives and thereby increase the dead to live fuel ratio; negating the high leaf moisture.

S. Irrigation should be directed away from old, established native oaks and be placed outside of the drip line.
T. Caution must be used so as to not cause erosion or ground (including slope) instability, or excessive water runoff, due to vegetation removal, vegetation management, or irrigation.
U. Permission must be obtained in advance from resource agencies, and any other applicable agencies, before doing vegetation management in riparian areas, or other sensitive areas or habitats.
V. If irrigation is curtailed or irrigation systems fail, any dried or dead vegetation must be removed from vegetation management zones and roadsides.
W. All landscape plans for private lots shall be reviewed and approved for fire safety by the Architectural Committee of the Homeowners Association (HOA).

ANNUAL ONGOING VEGETATION MANAGEMENT

Proper ongoing vegetation management is critical to fire safety. Vegetation management shall be done annually by May 1 of each year and as necessary for appropriate fire safety. The individual homeowners shall be responsible for all vegetation management on their lots in compliance with this plan and Fire Department requirements. The HOA will be responsible for all common areas, roadsides, buffer zones, retention basins, buffer zones, open space, parks, equestrian center, street scapes, medians, planters, etc. The HOA will assure private homeowner lots comply with this plan initially and on an ongoing basis. The requirements for ongoing maintenance will be included in the CC and R's and Deed encumbrances for each lot.

CONSTRUCTION PHASE VEGETATION MANAGEMENT

Vegetation management in all common areas, medians, planters, roadsides, etc shall be done as required in this plan at the start of, and throughout the construction phase. Vegetation management shall be done on private lots prior to work beginning on those lots and prior to any combustible construction materials being brought on site. Adequate fuel breaks shall be created around all grading, site work and other construction activities in areas where there is flammable vegetation.

DETERMINATION OF PROPER VEGETATION REDUCTION

Vegetation management is not an exact science. Experience and expertise are required in order to make site-specific determinations as to what is adequate vegetation reduction. The general criteria presented for the zones is subject to on site application, while assuring soil stability, prevention of erosion or excessive water runoff, and protection of sensitive habitat and endangered species. The objective is to slow down fire spread from vegetation to a structure, or from a structure to vegetation. There should be no vegetation (including plants and trees) from the prohibited vegetation list in this plan, in Zone A or B. Any existing Flammable vegetation in Zone C should be reduced to about 12% of existing amount.

7. BUILDING IGNITION AND FIRE RESISTANCE FOR ALL STRUCTURES:

Ignition resistant construction will be necessary for all structures and appurtenances in accordance with this Plan and all applicable County Codes and Ordinances. All setbacks shall comply with DPLU and County Fire Marshal requirements.

1. All residential and non-residential structures, including equestrian center buildings and barns, to have internal fire sprinkler systems designed to NFPA, County Fire Marshal and DPLU requirements. Single-family residential systems should be National Fire Protection Association (NFPA) standard 13-D with coverage to meet the requirements of the County Fire Marshal and DPLU including garages and enclosed patios or porches. Systems in occupancies other than strictly residential shall be NFPA 13 property protection systems.

2. Actual sprinkler system design and installation to be to the approval of the San Diego County Fire Marshal.

3. Roof systems shall be Class A, non-wood-shingle assemblies. Wood under coverings to be of an approved type. The end of any Spanish tile roofs should be blocked to prevent birds nests. All roof edges and valleys to be made tight so there are no gaps.

4. In all construction, exterior walls will be protected with 2-inch nominal solid blocking between rafters at all roof overhangs under the exterior wall covering.

5. Eaves shall the detailed and constructed in accordance with current County DPLU Codes and County Fire Code. For enhanced protection vent openings in eaves, eave overhangs, soffits, rakes, between rafters at eaves, or in other overhang areas are not recommended; if allowed by County Fire Marshal they shall be detailed and constructed to prevent flame or ember penetration into the structure and to the satisfaction of the County Fire Marshal.

6. All attic and foundation vents shall be properly designed to prevent flame or ember penetration into the structure, with County Fire Marshal approved mesh size and material. Louvers and approved ¼" mesh are required by code. The Architects and the Building official should investigate use of 3/16" or 1/8" corrosion resistant metal mesh and baffled vent systems, based on lessons learned in the recent fires regarding entrance of burning debris into ventilated spaces through ¼" mesh vents. A baffle system should be created and approved for installation behind vents to catch burning debris and sparks, while allowing adequate ventilation. Vents shall be designed to prevent flame or ember penetration into structure.

7. Any vent assemblies on roofs to be of an approved type. The County Building and Fire Codes allow turbines that turn in one direction only, so as to prevent burning debris from entering the ventilated space.

8. There shall be no paper faced insulation, or combustible insulation, in attics or other ventilated spaces.

9. Glazing facing wildland areas shall be minimized. Glazing in perimeter structures shall be tempered or double pane. Glazing on facing structures with less than 10' between them shall be tempered glass or double pane.

10. Plastic or vinyl window frames shall comply with the following:

    - Frame and sash are comprised of vinyl materials with welded corners.
    - Metal reinforcements in the interlock area.
    - Glazed with insulated glass or tempered.
    - Frame and sash profiles are certified in AAMA lineal certification program (verified with either an AAMA product label or certified products directory).
    - Certified and labeled in accordance with ANSI or other approved agency standard.
    - Comply with ANSI/AAMA/NWWDA 101/I.S 2-97 structural requirements, as required by County Fire Code.

11. Any skylights shall be tempered.

12. Except for windows and sliding glass patio doors, there shall be no plastic or vinyl on exteriors of structures.

13. Gutter and downspouts to be non-combustible. There shall be no plastic gutters or downspouts. Gutters shall be designed to prevent build up of debris, leaves, etc.

14. Exterior walls on all perimeter structures and all structures in the Village (where spacing between structures is less than 10'), to be either one hour rated stucco assembly or other approved one hour rated walls on exterior side. All other exterior walls on any structure of any kind, to be approved stucco or approved fire resistive materials such as "Hardy Board". No combustible wall coverings. Walls to comply with County Building and Fire Code.

15. Doors on structures shall be metal or solid core (1 ¾") heavy wood, or have a 20-minute fire rating. Any fiberglass doors shall be to approval of the County DPLU Fire Service Coordinator and the Building official. Fiberglass doors on perimeter structures to have 20 minute fire rating. Doors on garages to be metal. Wood garage doors may be proposed for use, but only if fire-rated to the satisfaction of the DPLU Fire Service Coordinator. Glazing in doors shall comply with glazing requirements in item 9 in this section.

16. Structures to be enclosed from underside of roof to ground. No open crawl spaces or open raised floor cavities.

17. Structures to have approved garden hose connections on all sides of structures.

18. Approved spark arrestors to be on all chimneys, stovepipes and flues. Arrestors to be visible from grade.

19. Outbuildings to have same structural fire protection as the main residence.

20. No hay, firewood, lumber, LPG tanks (except small tank on barbeque), etc, within 30' of residential structures or garages.

21. LPG tanks shall be properly anchored to ground to resist earthquake, or movement due to a fire or heavy rain.

22. THREE STORY RESIDENCES:

    Three story residences increase the fire and life safety risks in a residential structure. If such structures are proposed, it is required that the following be provided for enhanced fire and life safety, in addition to complying with the Building Code requirements for size, square footage, and type of construction. The following protection measures shall be provided for any third floor area which could be used as a bedroom, child nursery, and any area over 350 square feet:

    A. NFPA 13-R sprinkler system with 4 head calc, including sprinklers in attic.
    B. Fire resistive, 1 hour rated, construction of exterior walls.
    C. Provide large enough windows, sliding doors, and provide balconies, for escape.
    D. Use vaulted ceiling on third floor to eliminate attic space and attic vents.
    E. Use only non-combustible insulation with non-combustible paper.
    F. Enclose the stairway to the third story with rated self-closing door and 1-hour walls.
    G. Smoke detection system in third floor and throughout house shall sound the alarm in all detectors when any detector activates.
    H. Purchase 35' ladder for Fire Department
    I. Top of balcony shall not be more than 25' above accessible grade. 35' ladder will not reach over that.
    J. Provide a flat concrete spot on ground for fire department to raise ladder to the 3rd story balcony. Spot to be 5' by 5' and be 8' from building wall.
    K. Provide 3' wide firefighter foot access around all structures. Access must be adequate for maneuvering a gurney and a ground ladder.
    L. Set backs to be per DPLU requirements.

DECKS, FENCES, ADDRESSES:

A. Decks, porch covers, balconies, carports patio covers, gazebos, similar architectural appendages, unenclosed floors and roofs, and any projections from structures, will be non-combustible, one hour fire rated or heavy timber. Decks and accessory structures shall meet County Building and Fire Codes. The underside will be enclosed on all sides, or be heavy timber. When such appendages are attached to exterior walls, they will be constructed to maintain the fire resistive integrity of the wall. There will be no plastic or composite decks or railings which can melt in fire conditions or contribute to fire spread. Decks, patios and gazebos will be at least 100' from the property line where possible.

B. Fences within 100' of structures and along the project perimeter facing wildlands shall be heavy timber. Property line fencing along the perimeter should be solid block, masonry, steel, or heavy timber. Wood fencing for multi-use trail along

the perimeter and in the interior of the project will be heavy timber. In areas of the project interior where fence types such as picket and post and rail are considered, implementation will be subject to approval by the County Fire Marshal. Heavy timber split rail or heavy timber fences can be used outside of the fuel modification zones as well as within the equestrian centers and equestrian trails. No fencing or railings will be plastic or vinyl. An exception to the plastic or vinyl prohibition can be made at the village homes, where it may be used in a picket fence detail as long as it is non-combustible and not within 5' of the homes.

C. Structures will have reflective, visible, legible, street addresses; 4" high numbers with 3/8" stroke for residential; 6" numbers with 1/2" stroke for other occupancies. Characters will contrast with their background. Addresses to also be posted at the road entrance to driveways. Addresses will be visible from the roadway from either direction of approach. Addresses shall not be posted on wooden posts.

D. No plastic fences or railings along roads or trails.

8. ACCESS ROADS AND FIREFIGHTER WALKWAYS:

Access roads, not including alleys, will comply with San Diego County Fire Code Section 902.2, and will be provided when the any portion of the facility or any portion of the exterior wall of the first floor of any structure is beyond 150' from the closest approved, 24'wide unobstructed, Fire Department vehicle access, as measured by an approved route around exterior of the building. Road to support a 50,000-pound fire apparatus. This includes all residences, equestrian center, and other occupancies. All roads, and any cul-de-sac bulbs or hammerheads, shall be all weather and meet County Fire Marshal and DPLU requirements for fire access. The required road widths of all roads will be a minimum of 24'unobstructed width (unobstructed by parking) and will have 13'6" high unobstructed clearance, and be of a paved surface capable of supporting a 25 ton fire truck. Roads where parking would extend into the 24' unobstructed width, assuming 6' wide parking stalls (as required by San Diego County) shall be posted "*No Parking- Fire Lane*".

All access roads with a smaller than code required unobstructed width will be provided with 40' long turnouts at each fire hydrant, for fire engines. This condition only occurs at the one-way streets along the creek channels in the Village Center. A detailed drawing of this turnout feature is provided in the appendix to this Report.

Where a 24' wide unobstructed roads does not reach within 150' of all points of an exterior wall, as required by the Fire Code, enhanced fire protection measures (as allowed in section 2 of the exceptions in section 902.2) may be used to mitigate the condition. Examples of mitigation measures that may be considered include 1 hour rated exterior walls, remotely electrically supervised smoke detection, remotely electrically supervised fire sprinklers (supervised to an approved 24/7 alarm monitoring company). These sections of road which have houses beyond 150' from a 24' road are limited to two relatively short sections of road along the Southern creek channel, approximately 300' each, and affect approximately 20 homes.

There shall be no over overhanging canopies. There shall be no road grades over 15% unless approved by the Fire marshal and mitigated (20% Max). Angle of departure and approach to be approved by Fire Marshal. Turning radius to be 28' measured from inside of approved width.

Where there are 20' wide alleys serving garage access, "*No Parking-Fire Lane*" shall be posted and fire hydrant will be located within 50' of the entrance to each alley.

A. Driveways will be provided if structure is 150' beyond the Fire Department access road (the on site roads). Residential driveways, serving no more than two single-family dwellings, to be 16' wide by 13'6" high unobstructed. A fire hydrant shall be installed within 150' of house if the distance to house from a hydrant on the road exceeds required hydrant spacing distance on roads. Lots over 2 acres shall have an approved, 250 GPM, fire department standpipe within 150' of house. Maximum driveway grade will be 15%, unless mitigated to approval of the County Fire Marshal. Mitigation can include concrete driveway with heavy broomed finish perpendicular to direction of travel, for traction. (20% max). Driveways exceeding 150' in length shall have an approved turnaround at house.
B. Access roads serving more than 2 structures shall be 24' wide unobstructed, have 13'6" vertical clearance, and have Cul-de-sac turnarounds (bulbs) or hammerheads at its terminus if

the road is longer than 150' from its nearest intersection. Bulbs and hammerheads will be posted with "*No Parking-Fire Lane*" sign. If a Cul-de-sac bulb is employed, it is to have 40' radius (80' diameter) for residential developments.

C. Any speed bumps, traffic calming devices, raised planters or median strips will be to County Fire Marshal approval. There will be no trees or other plantings within the unobstructed width of access roads.

D. Any gates, including automatic gates, will comply with the San Diego County Fire Code. There will be no gated communities within the Development, or gated common roads. Private homeowners may gate their individual private driveways as long as they comply with all applicable County codes including the Consolidated Fire Code.

E. Provide 3' wide firefighter foot access around all structures. Provide locations for spotting of Fire Department ground ladders on multiple storied structures. There shall be no trees or landscape, other than groundcover which could prohibit Fire Department from gaining access and spotting ladders.

F. Streets will be named and have street signs at each intersection, listing the hundred block, meet County Fire Marshal standards and have reflective letters/numbers, and be non combustible (non wood/non plastic) on non combustible (non wood/ non plastic) posts.

G. Fire Truck access points will be provided for direct access to wildland areas and open spaces abutting developed areas. These access points may be intermittent 12' wide access points from perimeter roads within the Development, or may be all weather 12' wide, non paved, roads which provide access to perimeter wildland areas. Access points are identified on the Vegetation Management Plan map in appendix of the Fire Protection Plan and shall be located to the approval of the County Fire Marshal.

H. An emergency ingress /egress road with perceived-denied access will be provided between lot 252 and the retention basin, connecting to Country Club Road.

9. WATER SUPPLY AND FIRE FLOW:

Approved emergency fire truck access will be provided to within 10’ of the on site water pond. A drafting hydrant shall be provided at this location. The pond can be used (and has been used) to fill helicopter buckets.

Fire Hydrants:

This Development will be served by an extension of the Rincon Del Diablo public water system and will have mains and hydrants. The fire flow is required to be 2500 GPM for 2 hours, per Section 903.4.2.2, of the San Diego Consolidated Fire Code requirements, at pressures required to supply fire sprinklers and provide 20 PSI residual at hydrants during periods of maximum peak domestic demand. Pressure demands for fire sprinklers will be higher.

The fire flow is based upon all new structures having fire sprinklers. Hydrant spacing assumes installation of fire sprinklers. Fire hydrants shall be of an approved type and have one 4" outlet and one 2.5" outlet, unless otherwise specified by County Fire Marshal. Fire hydrants will have a 3' by 3' gravel (for dry barrel hydrant) or concrete pad at base for weed control. Reflective blue dot hydrant markers will be located in the center of the road to indicate location of a hydrant.

Hydrant Spacing:

Fire hydrants shall be located at 600' spacing; beginning at the intersection of each built upon street. Hydrants shall be on the right (driving) side of the street. A hydrant shall be located at each intersection and at each entrance to cul-de-sac bulb, and within 50' of the entrance to alleys.

Each fire hydrant on any road which has less than 24' unobstructed width shall have a red curbed, posted 40' long pull out area for fire engines to pull out of traffic to connect to fire hydrants. This space shall be posted "No Parking-Fire Lane". Details as shown on drawing in appendix to this plan, and shall be to County Fire Marshal approval.

Houses over 150' from road shall have a 250 GPM fire standpipe (2.5" gated Jones valve on 4" riser approved by Fire Department) within 150' of house on driveway.

10. FIRE PROTECTION SYSTEMS AND EQUIPMENT:

Explanatory Note: All fire extinguishing systems shall be installed per San Diego County Consolidated Fire Code and NFPA standards.

All residential and non-residential structures, including equestrian center buildings and barns, to have internal fire sprinkler systems designed to NFPA, DPLU, and County Fire Marshal requirements. Single-family residential systems should be National Fire Protection Association (NFPA) standard 13-D with coverage to meet the requirements of the DPLU and County Fire Marshal including garages and enclosed patios or porches. Buildings with other than strictly residential uses shall be NFPA 13 property protection systems; For example, retail commercial buildings and office buildings. The live-work units in the Village core (such as an artist studio or professional office in a home) may use a 13-D system. Final determination of the type of NFPA 13 system for the live work units is to be to approval of the DPLU Fire plan checker at time of plan submittal.

Actual sprinkler system design and installation is to be to approval of the County Fire Marshal.

Sprinkler systems in all buildings other than single family dwellings will be electronically supervised to an approved 24 hour answering point, where a trained person is present who can verify alarm and call 911.

Location of all Fire Department Pumper connections for non-residential sprinklers to be to Fire Department and County Fire Marshal approval. They shall be at curb of structures on address side on a road that has 24’ unobstructed width, shall be 40’ from buildings, and have a fire hydrant within 25’.

All residential units are to have smoke detectors.

11. EMERGENCY PLAN AND REPORTING OF EMERGENCIES:

An Emergency Plan shall be prepared and issued to all residents of the Development. This plan shall include procedures and guidelines for protective actions to take in the event of an emergency and shall be to the approval of the EFHGVFD.

12. HELICOPTER LANDING AREA:

A location to land a helicopter, such as at the park where there are no trees, steep slopes, or power lines, will be provided. A fire hydrant will be located within 150' of the landing area.

13. ANCILLARY USES SUCH AS HAZARDOUS MATERIALS, FLAMMABLE AND COMBUSTIBLE LIQUIDS, MAINTENANCE/STORAGE AREAS, ELECTRIC CART BATTERY CHARGING, KITCHENS:

All locations storing and using hazardous materials (including certain landscaping chemicals), flammable or combustible liquids, equestrian center, areas where batteries are stored and charged, etc., shall comply with the appropriate sections of the California Fire Code. Any kitchens and cooking areas will comply with the Fire and Building Codes.

14. SUMMARY:

All buyers and occupants of property in this Development will be put on notice that this project is within a high fire hazard area. All buyers shall also be given a copy of this report.

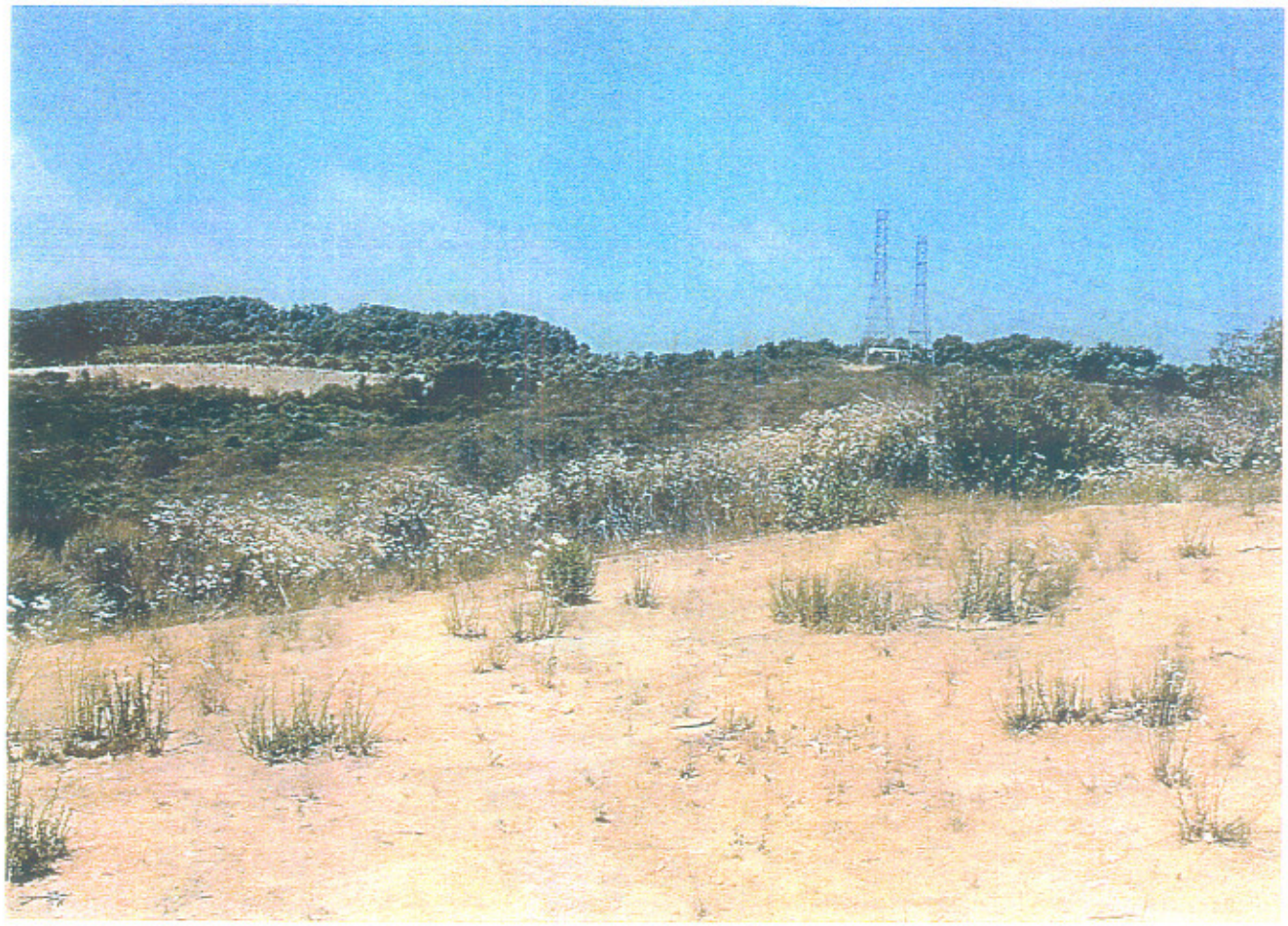
This Development will comply with all applicable requirements of the San Diego County Fire and Building Codes. The requirements in this plan, when approved by the County Fire Marshal and/or other applicable agencies, shall be included in the CC&R's of this Development and will be a deed encumbrance or other legal document recorded on the homeowner lot which will be follow all subsequent property sale.

As fire is dynamic and unpredictable, this plan does not guarantee that a fire won't occur or won't cause property damage, injury or loss of life.

Building architecture, landscape architecture, and engineering are out of the scope of this Fire Protection Plan. All final building architecture, landscape architecture and engineering design and official plan approvals of same must be obtained from the authorities having jurisdiction including the County Fire Marshal. In the event there is a practical difficulty, legal environmental constraint or other legal constraints, or engineering/architectural difficulties in complying with this plan, alternative methods of compliance may be submitted to the County Fire Marshal for review and approval in compliance with the spirit and intent of this Conceptual Fire Protection Plan

APPENDIX

Wilgen Road looking south from near pond



Looking north from front of existing home above pond

Looking northwest from Country Club Drive

Looking west from front of existing home above pond (same location as photo 2)

Same view as photo #2 with telephoto lens

Wilgen Road looking south. South of photo #1

Looking east from front of existing home above pond

Legend:

100' Fuel Modification Zone from All Sides of Structures

- ● 1 hour rated exterior walls at these locations and at locations where there is less than 10' between structures. All other Exterior Walls to be non-combustible.
- ◉ Provide Fire Department access from improved roadway or driveway into adjacent Open Space. Access to be curb cut and drive apron. Construction of roadways throughout Open Space is not required.
- ▲ For homes on lots with existing avocado and citrus groves:
  - 30' from face of structure properly limbed, maintained and irrigated groves are allowed (within the 100').
  - Thin out existing flammable native vegetation beyond 100' from structures to property line on north where shown (zone C).
- ■ For areas of Fuel Modification shown outside Project Boundary or at conflicts with Biological Open Space:
  - At locations where 100' of Fuel Modification may not possible from structure within an individual lot, alternate methods of compliance may be used as approved by the Fire Department. Alternate methods can include 6' block wall at property line, easements for Fuel Modification outside of project boundary or other methods as approved by the Fire Department.

Clear Flammable Vegetation 50' on Downslope (street above slope) or to Limit of Grading (see plan)

40' Fuel Modification Zone Between Structures and Creek/Channels

See Section 6-I of Fire Protection Plan:
Oak WoodLand

Biological Open Space
No Fuel Modification or Vegetation Management

General Notes:

1. All roads are to have flammable vegetation cleared 10' either side of road or irrigated fire safe landscaping installed and maintained, with the exception of roads with additional clearing as noted on legend and map or where additional clearance is required per County Fire Code: Appendix 11-A; Table 17.2.
2. All multi-use trails shall have flammable vegetation cleared to 10' each side of trail or to limit of trail lot line.

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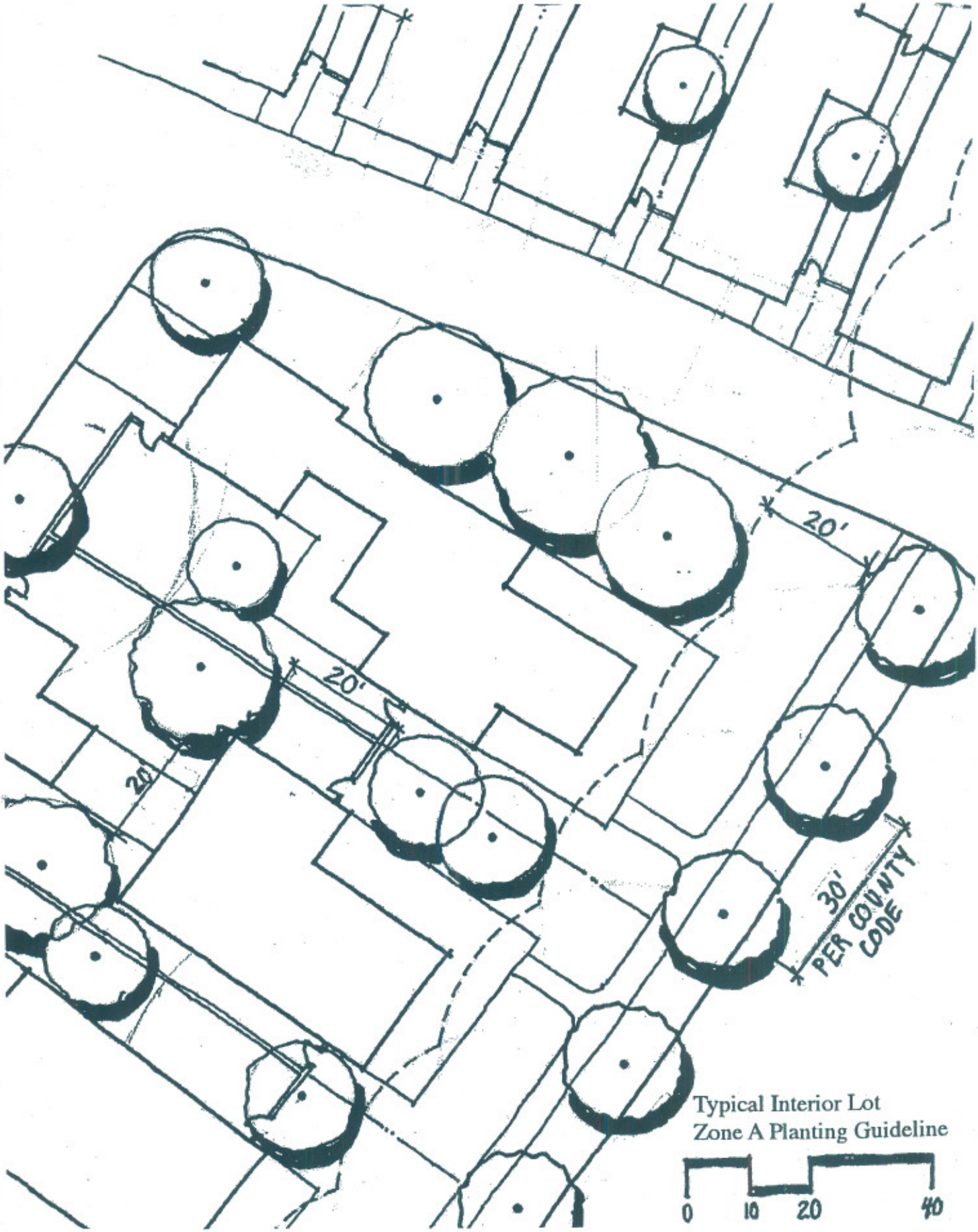
Urban Design/Planning Division

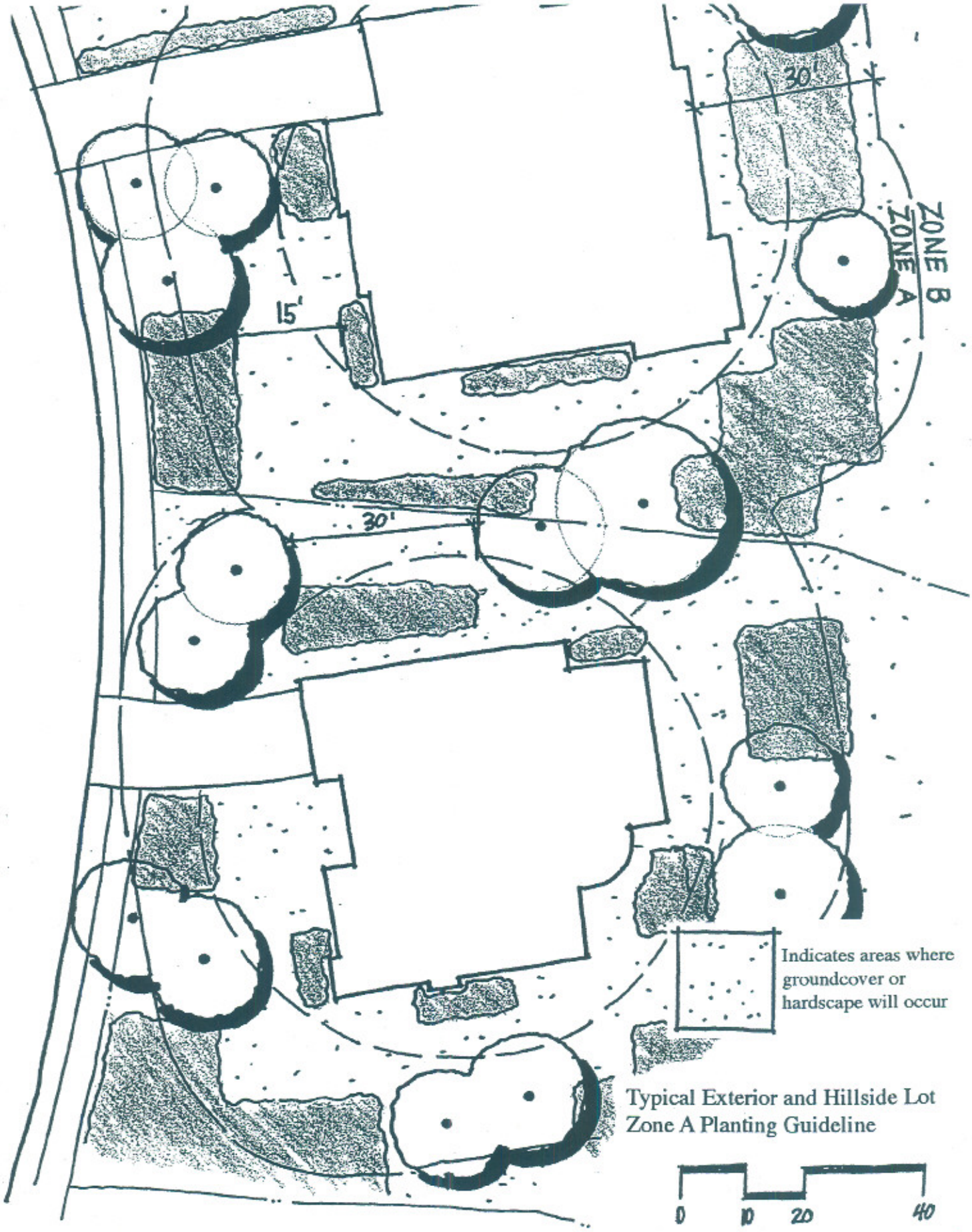
VEGETATION MANAGEMENT ZONE EXHIBIT
Harmony Grove Village



Typical Interior Lot
Zone A Planting Guideline

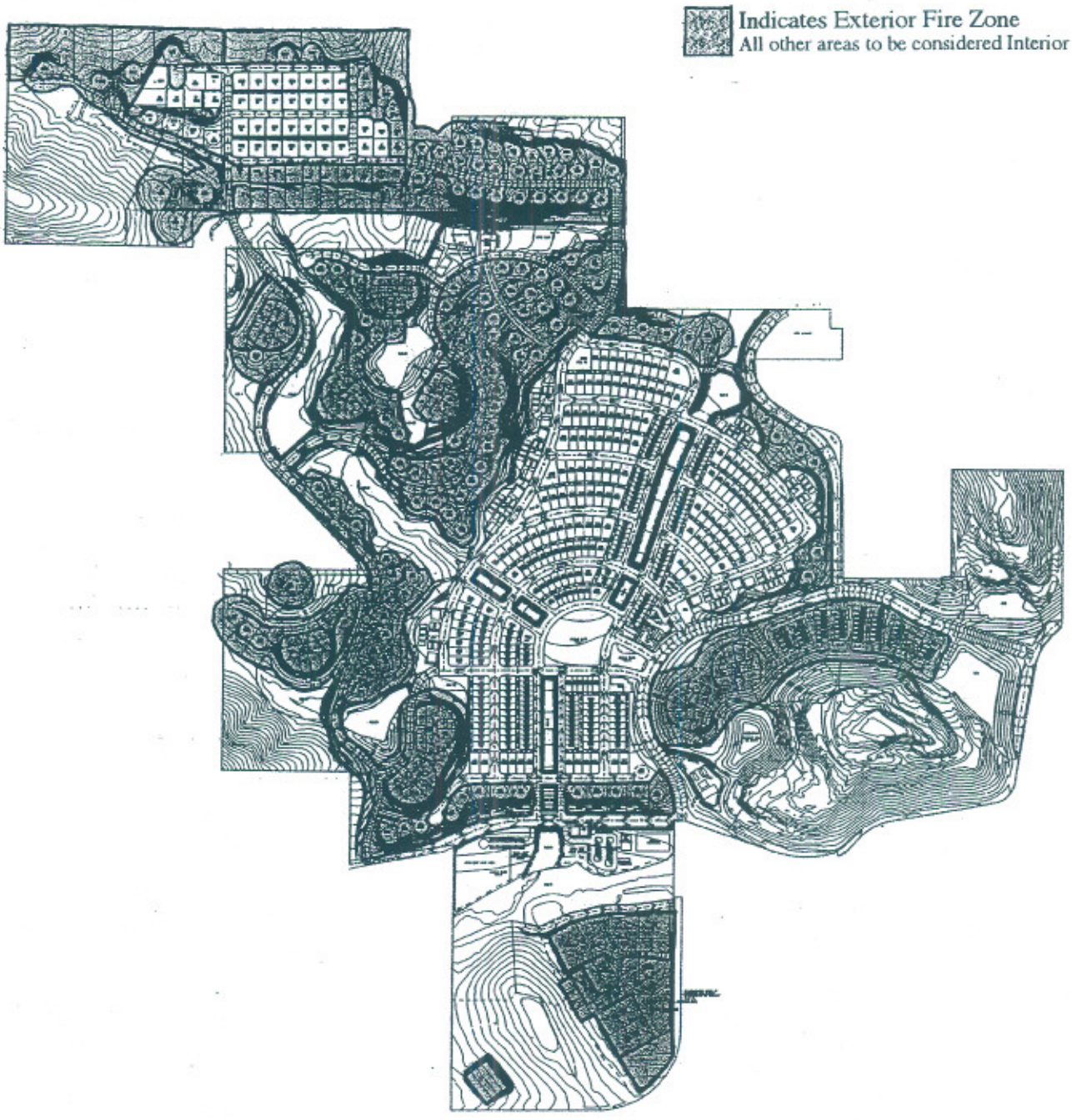
This guideline was developed by the Landscape Architects; Burton and Associates. Actual planting and spacing shall comply with this plan

1/05



Typical Exterior and Hillside Lot
Zone A Planting Guideline

This guideline was developed by the Landscape Architect; Burton and Associates. Actual planting and spacing shall comply with this plan.



Exterior and Hillside /Interior Lot Boundary Location Map

Interior Lot Landscape Tree Spacing Legend			
Botanical Name	Common Name	Plant to Plant Spacing Criteria	Plant to Structure Spacing Criteria
Acer species	Maple	10' between canopies	Canopy cannot overhang structure
Agonis flexuosa	Peppermint Tree	10' between canopies	Canopy cannot overhang structure
Alnus rhombifolia	White Alder	Canopy to canopy	Canopy cannot overhang structure
Arbutus unedo	Strawberry Tree	Canopy to canopy	Canopy cannot overhang structure
Avocado species	Avocado	10' between canopies	Canopy cannot overhang structure
Betula pendula	European White Birch	Canopy to canopy	Canopy cannot overhang structure
Cassia leptophylla	Gold Medallion Tree	10' between canopies	Canopy cannot overhang structure
Ceratonia siliqua	Carob	Canopy to canopy	Canopy cannot overhang structure
Chorisia speciosa 'Majestic	Floss Silk Tree	10' between canopies	Canopy cannot overhang structure
Cinnamomum camphora	Camphor Tree	20' between canopies	Canopy must remain 10' clear of structure
Citrus species	Citrus	10' between canopies	Canopy cannot overhang structure
Cupaniopsis anacardioides	Carrot Wood	10' between canopies	Canopy cannot overhang structure
Eriobotrya japonica	Loquat	Canopy to canopy	Canopy cannot overhang structure
Erythrina coralloides	Naked Coral Tree	10' between canopies	Canopy cannot overhang structure
Ficus species	Fig	10' between canopies	Canopy cannot overhang structure
Fraxinus angustifolia	Ash	Canopy to canopy	Canopy cannot overhang structure
Fraxinus velutina	Arizona Ash	10' between canopies	Canopy cannot overhang structure
Geijera parviflora	Australian Willow	10' between canopies	Canopy cannot overhang structure
Ginkgo biloba	Maidenhair Tree	10' between canopies	Canopy cannot overhang structure
Heteromeles arbutifolia	Toyon	Canopy to canopy	Canopy cannot overhang structure
Jacaranda mimosifolia	No Common Name	Canopy to canopy	Canopy cannot overhang structure
Koelreuteria bipinnata	Chinese Flame Tree	Canopy to canopy	Canopy cannot overhang structure
Koelreuteria paniculata	Goldenrain Tree	Canopy to canopy	Canopy cannot overhang structure
Lagerstroemia species	Crape Myrtle	10' between canopies	Canopy cannot overhang structure
Laurus nobilis	Sweet Bay	Canopy to canopy	Canopy cannot overhang structure
Liquidambar styraciflua	American Sweetgum	Canopy to canopy	Canopy cannot overhang structure
Magnolia species	Magnolia	Canopy to canopy	Canopy cannot overhang structure
Malosma laurina	Laurel Sumac	Canopy to canopy	Canopy cannot overhang structure
Metrosideros excelsus	New Zealand Christmas	10' between canopies	Canopy cannot overhang structure
Olea europaea	Olive	15' between canopies	Canopy must remain 5' clear of structure
Pistachia chinesis	Chinese Pistache	Canopy to canopy	Canopy cannot overhang structure
Pittosporum undulatum	Victorian Box	10' between canopies	Canopy cannot overhang structure

This legend was developed by the Landscape Architect; Burton and Associates. All trees, spacing and maintence shall comply with this plan.

Platanus acerifolia	London Plane Tree	10' between canopies	Canopy cannot overhang structure
Platanus racemosa	California Sycamore	Canopy to canopy	Canopy can overhang structure
Podocarpus gracilior	Fern Pine	Acceptible as specimen planting	Canopy must remain 10' clear of structure
Populus fremontii	Western Cottonwood	Canopy to canopy	Canopy cannot overhang structure
Populus nigra 'Italica'	Lombardy Poplar	Canopy to canopy	Canopy cannot overhang structure
Prunus species	Cherry	Canopy to canopy	Canopy cannot overhang structure
Pyrus calleryana	Ornamental Pear	Canopy to canopy	Canopy cannot overhang structure
Pyrus kawakamii	Evergreen Pear	Canopy to canopy	Canopy cannot overhang structure
Quercus agrifolia	Coast Live Oak	Canopy to canopy	Canopy cannot overhang structure
Quercus chrysolepis	Canyon Live Oak	Canopy to canopy	Canopy cannot overhang structure
Quercus douglasii	Blue Oak	Canopy to canopy	Canopy cannot overhang structure
Quercus engelmannii	Engelmann Oak	Canopy to canopy	Canopy cannot overhang structure
Quercus ilex	Holly Oak	Canopy to canopy	Canopy cannot overhang structure
Quercus lobata	Valley Oak	Canopy to canopy	Canopy cannot overhang structure
Quercus palustris	Pin Oak	Canopy to canopy	Canopy cannot overhang structure
Quercus rubra	Red Oak	Canopy to canopy	Canopy cannot overhang structure
Quercus suber	Cork Oak	Canopy to canopy	Canopy cannot overhang structure
Quercus virginiana	Southern Live Oak	Canopy to canopy	Canopy cannot overhang structure
Rhus integrifolia	Lemonade Berry	5' between canopies	Canopy cannot overhang structure
Rhus lancea	African Sumac	5' between canopies	Canopy cannot overhang structure
Salix species	Willow	Canopy to canopy	Canopy cannot overhang structure
Sambucus mexicana	Blue Elderberry	Canopy to canopy	Canopy cannot overhang structure
Tipuana tipu	Tipu Tree	Canopy to canopy	Canopy cannot overhang structure
Tristania conferta	Brisbane Box	10' between canopies (40' between canopies	Canopy cannot overhang structure
Tristania laurina	Water Gum	10' between canopies (40' between canopies	Canopy cannot overhang structure
Ulmus parvifolia	Chinese Elm	Canopy to canopy	Canopy cannot overhang structure
Notes:			
1. A wide variety of trees have been included in this legend. It is not intended that all of the plant material listed will be used in the final design.			
2. Trees not included in the legend may be submitted to the appropriate fire authority and used upon approval.			
3. All tree canopies must be 10' clear of any chimney or open flame (I.e. barbecues).			
4. Trees may be planted in clusters of 2 or 3 as specified in the Fire Protection Plan.			
5. Planting concepts which differ from the above criteria may be submitted to the appropriate fire authority and used upon approval.			

Exterior and Hillside Lot Landscape Tree Spacing Legend				
Botanical Name	Common Name	Plant to Plant Spacing Criteria	Plant to Structure Spacing Criteria	
Acer species	Maple	30' between canopies	Canopy must remain 10' clear of structure	
Alnus rhombifolia	White Alder	30' between canopies	Canopy must remain 10' clear of structure	
Arbutus unedo	Strawberry Tree	30' between canopies	Canopy must remain 10' clear of structure	
Avocado species	Avocado	30' between canopies	Canopy must remain 10' clear of structure	
Betula pendula	European White Birch	30' between canopies	Canopy must remain 10' clear of structure	
Ceratonia siliqua	Carob	30' between canopies	Canopy must remain 10' clear of structure	
Cinnamomum camphora	Camphor Tree	30' between canopies	Canopy must remain 10' clear of structure	
Citrus species	Citrus	30' between canopies	Canopy must remain 10' clear of structure	
Cupaniopsis anacardioide	Carrot Wood	30' between canopies	Canopy must remain 10' clear of structure	
Eriobotrya japonica	Loquat	30' between canopies	Canopy must remain 10' clear of structure	
Ficus species	Fig	30' between canopies	Canopy must remain 10' clear of structure	
Fraxinus velutina	Arizona Ash	30' between canopies	Canopy must remain 10' clear of structure	
Geijera parviflora	Australian Willow	30' between canopies	Canopy must remain 10' clear of structure	
Ginkgo biloba	Maidenhair Tree	30' between canopies	Canopy must remain 10' clear of structure	
Heteromeles arbutifolia	Toyon	30' between canopies	Canopy must remain 10' clear of structure	
Jacaranda mimosifolia	No Common Name	30' between canopies	Canopy must remain 10' clear of structure	
Koelreuteria bipinnata	Chinese Flame Tree	30' between canopies	Canopy must remain 10' clear of structure	
Koelreuteria paniculata	Goldenrain Tree	30' between canopies	Canopy must remain 10' clear of structure	
Lagerstroemia species	Crape Myrtle	30' between canopies	Canopy must remain 10' clear of structure	
Laurus nobilis	Sweet Bay	30' between canopies	Canopy must remain 10' clear of structure	
Malosma laurina	Laurel Sumac	30' between canopies	Canopy must remain 10' clear of structure	
Metrosideros excelsus	New Zealand Christmas	30' between canopies	Canopy must remain 10' clear of structure	
Olea europaea	Olive	30' between canopies	Canopy must remain 10' clear of structure	
Pistachia chinesis	Chinese Pistache	30' between canopies	Canopy must remain 10' clear of structure	
Pittosporum undulatum	Victorian Box	30' between canopies	Canopy must remain 10' clear of structure	
Platanus acerifolia	London Plane Tree	30' between canopies	Canopy must remain 10' clear of structure	
Platanus racemosa	California Sycamore	30' between canopies	Canopy must remain 10' clear of structure	
Podocarpus gracilior	Fern Pine	30' between canopies	Canopy must remain 10' clear of structure	
Populus fremontii	Western Cottonwood	30' between canopies	Canopy must remain 10' clear of structure	
Populus nigra 'Italica'	Lombardy Poplar	30' between canopies	Canopy must remain 10' clear of structure	
Prunus species	Cherry	30' between canopies	Canopy must remain 10' clear of structure	
Pyrus calleryana	Ornamental Pear	30' between canopies	Canopy must remain 10' clear of structure	
Pyrus kawakamii	Evergreen Pear	30' between canopies	Canopy must remain 10' clear of structure	
Quercus agrifolia	Coast Live Oak	30' between canopies	Canopy must remain 10' clear of structure	
Quercus chrysolepis	Canyon Live Oak	30' between canopies	Canopy must remain 10' clear of structure	

This legend was developed by the Landscape Architect; Burton and Associates. All trees, spacing, and maintenance shall comply with this plan.

1/4/07

Quercus douglasii	Blue Oak	30' between canopies	Canopy must remain 10' clear of structure	
Quercus engelmannii	Engelmann Oak	30' between canopies	Canopy must remain 10' clear of structure	
Quercus ilex	Holly Oak	30' between canopies	Canopy must remain 10' clear of structure	
Quercus lobata	Valley Oak	30' between canopies	Canopy must remain 10' clear of structure	
Quercus palustris	Pin Oak	30' between canopies	Canopy must remain 10' clear of structure	
Quercus rubra	Red Oak	30' between canopies	Canopy must remain 10' clear of structure	
Quercus suber	Cork Oak	30' between canopies	Canopy must remain 10' clear of structure	
Quercus virginiana	Southern Live Oak	30' between canopies	Canopy must remain 10' clear of structure	
Rhus integrifolia	Lemonade Berry	30' between canopies	Canopy must remain 10' clear of structure	
Rhus lancea	African Sumac	30' between canopies	Canopy must remain 10' clear of structure	
Salix species	Willow	30' between canopies	Canopy must remain 10' clear of structure	
Sambucus mexicana	Blue Elderberry	30' between canopies	Canopy must remain 10' clear of structure	
Tipuana tipu	Tipu Tree	30' between canopies	Canopy must remain 10' clear of structure	
Tristania conferta	Brisbane Box	30' between canopies	Canopy must remain 10' clear of structure	
Tristania laurina	Water Gum	30' between canopies	Canopy must remain 10' clear of structure	
Ulmus parvifolia	Chinese Elm	30' between canopies	Canopy must remain 10' clear of structure	
Notes:				
1. A wide variety of trees have been included in this legend. It is not intended that all of the plant material listed will be used in the final design.				
2. Trees not included in the legend may be submitted to the appropriate fire authority and used upon approval.				
3. All tree canopies must be 10' clear of any chimney or open flame (i.e. barbecues).				
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5. Planting concepts which differ from the above criteria may be submitted to the appropriate fire authority and used upon approval.				

Harmony Grove FM 1, Fall fire

Rate of Spread (maximum)	665.6	ch/h
Flame Length	12.7	ft
Midflame Wind Speed (upslope)	15.0	mi/h
Maximum Wind Exceeded?	Yes	
Spotting Distance from a Wind Driven Surface Fire	1.0	mi
Probability of Ignition from a Firebrand	100	%

Modules: SURFACE, SPOT, IGNITE

Description		Harmony Grove FM 1, Fall fire
Fuel/Vegetation		
Fuel Model		1
Mean Cover Height	ft	2
Fuel Moisture		
1-h Moisture	%	2
10-h Moisture	%	
100-h Moisture	%	
Live Herbaceous Moisture	%	
Live Woody Moisture	%	
Weather		
20-ft Wind Speed (upslope)	mi/h	50
Wind Adjustment Factor		0.3
Air Temperature	oF	95
Terrain		
Slope Steepness	%	0
Ridge-to-Valley Elevation Difference	ft	230
Ridge-to-Valley Horizontal Distance	mi	0.2
Spotting Source Location		MW
Fuel Shading from the Sun	%	0

Run Options

Wind direction is upslope.
Calculations are only for the direction of maximum spread.
Fireline intensity, flame length, and spread distance are always for the direction of the spread calculations.
Wind and spread directions are degrees clockwise from upslope.
Wind direction is the direction the wind is pushing the fire.

Output Variables

Rate of Spread (maximum) (ch/h)
Flame Length (ft)

(continued on next page)

Harmony Grove: FM 3 Fall Fire

Rate of Spread (maximum)	741.4	ch/h
Flame Length	35.5	ft
Midflame Wind Speed (upslope)	15.0	mi/h
Maximum Wind Exceeded?	No	
Spotting Distance from a Wind Driven Surface Fire	2.1	mi
Probability of Ignition from a Firebrand	100	%

Modules: SURFACE, SPOT, IGNITE

Description		Harmony Grove: FM 3 Fall Fire
Fuel/Vegetation		
Fuel Model		3
Mean Cover Height	ft	3
Fuel Moisture		
1-h Moisture	%	2
10-h Moisture	%	
100-h Moisture	%	
Live Herbaceous Moisture	%	
Live Woody Moisture	%	
Weather		
20-ft Wind Speed (upslope)	mi/h	50
Wind Adjustment Factor		0.3
Air Temperature	oF	95
Terrain		
Slope Steepness	%	0
Ridge-to-Valley Elevation Difference	ft	230
Ridge-to-Valley Horizontal Distance	mi	0.2
Spotting Source Location		MW
Fuel Shading from the Sun	%	0

Run Options

Wind direction is upslope.

Calculations are only for the direction of maximum spread.

Fireline intensity, flame length, and spread distance are always for the direction of the spread calculations.

Wind and spread directions are degrees clockwise from upslope.

Wind direction is the direction the wind is pushing the fire.

Output Variables

Rate of Spread (maximum) (ch/h)

Flame Length (ft)

(continued on next page)

Harmony Grove-FM4 Fall-50 mph

Rate of Spread (maximum)	1339.3	ch/h
Flame Length	82.8	ft
Midflame Wind Speed (upslope)	25.0	mi/h
Maximum Wind Exceeded?	No	
Spotting Distance from a Wind Driven Surface Fire	3.7	mi
Probability of Ignition from a Firebrand	100	%

Modules: SURFACE, SPOT, IGNITE

Description		Harmony Grove-FM4 Fall-50 mph
Fuel/Vegetation		
Fuel Model		4
Mean Cover Height	ft	6
Fuel Moisture		
1-h Moisture	%	2
10-h Moisture	%	3
100-h Moisture	%	3
Live Herbaceous Moisture	%	
Live Woody Moisture	%	55
Weather		
20-ft Wind Speed (upslope)	mi/h	50
Wind Adjustment Factor		0.5
Air Temperature	oF	95
Terrain		
Slope Steepness	%	0
Ridge-to-Valley Elevation Difference	ft	230
Ridge-to-Valley Horizontal Distance	mi	0.2
Spotting Source Location		RT
Fuel Shading from the Sun	%	0

Run Options

Wind direction is upslope.
Calculations are only for the direction of maximum spread.
Fireline intensity, flame length, and spread distance are always for the direction of the spread calculations.
Wind and spread directions are degrees clockwise from upslope.
Wind direction is the direction the wind is pushing the fire.

Output Variables

Rate of Spread (maximum) (ch/h)
Flame Length (ft)

(continued on next page)

Harmony Grove FM 8 Fall Fire

Rate of Spread (maximum)	10.6	ch/h
Flame Length	2.6	ft
Midflame Wind Speed (upslope)	15.0	mi/h
Maximum Wind Exceeded?	Yes	
Spotting Distance from a Wind Driven Surface Fire	0.3	mi
Probability of Ignition from a Firebrand	100	%

Modules: SURFACE, SPOT, IGNITE

Description		Harmony Grove FM 8 Fall Fire
Fuel/Vegetation		
Fuel Model		8
Mean Cover Height	ft	0
Fuel Moisture		
1-h Moisture	%	2
10-h Moisture	%	2
100-h Moisture	%	3
Live Herbaceous Moisture	%	
Live Woody Moisture	%	
Weather		
20-ft Wind Speed (upslope)	mi/h	50
Wind Adjustment Factor		0.3
Air Temperature	oF	95
Terrain		
Slope Steepness	%	0
Ridge-to-Valley Elevation Difference	ft	230
Ridge-to-Valley Horizontal Distance	mi	0.2
Spotting Source Location		MW
Fuel Shading from the Sun	%	70

Run Options

Wind direction is upslope.

Calculations are only for the direction of maximum spread.

Fireline intensity, flame length, and spread distance are always for the direction of the spread calculations.

Wind and spread directions are degrees clockwise from upslope.

Wind direction is the direction the wind is pushing the fire.

Output Variables

Rate of Spread (maximum) (ch/h)

Flame Length (ft)

(continued on next page)

Harmony Grove FM 18 Coastal scrub fall fire

Rate of Spread (maximum)	234.8	ch/h
Flame Length	41.4	ft
Midflame Wind Speed (upslope)	25.0	mi/h
Maximum Wind Exceeded?	No	
Spotting Distance from a Wind Driven Surface Fire	2.3	mi
Probability of Ignition from a Firebrand	100	%

Modules: SURFACE, SPOT, IGNITE

Description: Harmony Grove FM 18 Coastal scrub fall fire

Fuel/Vegetation

Fuel Model		SCAL18
Mean Cover Height	ft	7

Fuel Moisture

1-h Moisture	%	2
10-h Moisture	%	2
100-h Moisture	%	3
Live Herbaceous Moisture	%	55
Live Woody Moisture	%	55

Weather

20-ft Wind Speed (upslope)	mi/h	50
Wind Adjustment Factor		0.5
Air Temperature	oF	95

Terrain

Slope Steepness	%	0
Ridge-to-Valley Elevation Difference	ft	230
Ridge-to-Valley Horizontal Distance	mi	0.2
Spotting Source Location		MW
Fuel Shading from the Sun	%	0

Run Options

Wind direction is upslope.

Calculations are only for the direction of maximum spread.

Fireline intensity, flame length, and spread distance are always for the direction of the spread calculations.

Wind and spread directions are degrees clockwise from upslope.

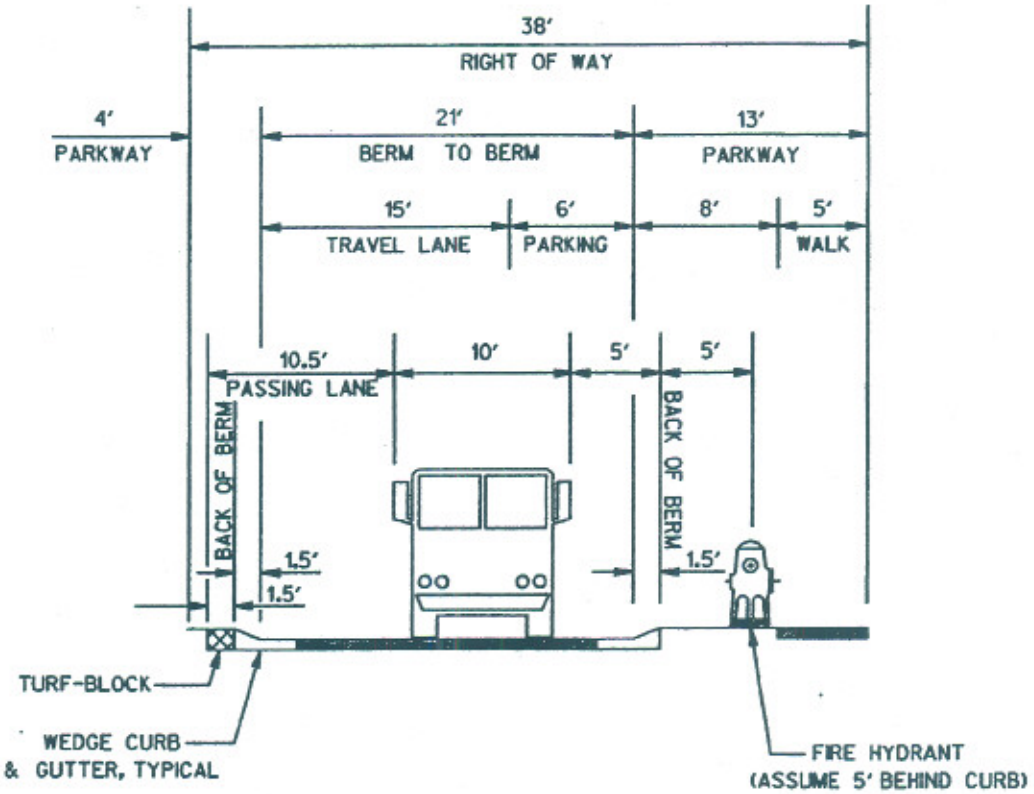
Wind direction is the direction the wind is pushing the fire.

Output Variables

Rate of Spread (maximum) (ch/h)

Flame Length (ft)

(continued on next page)

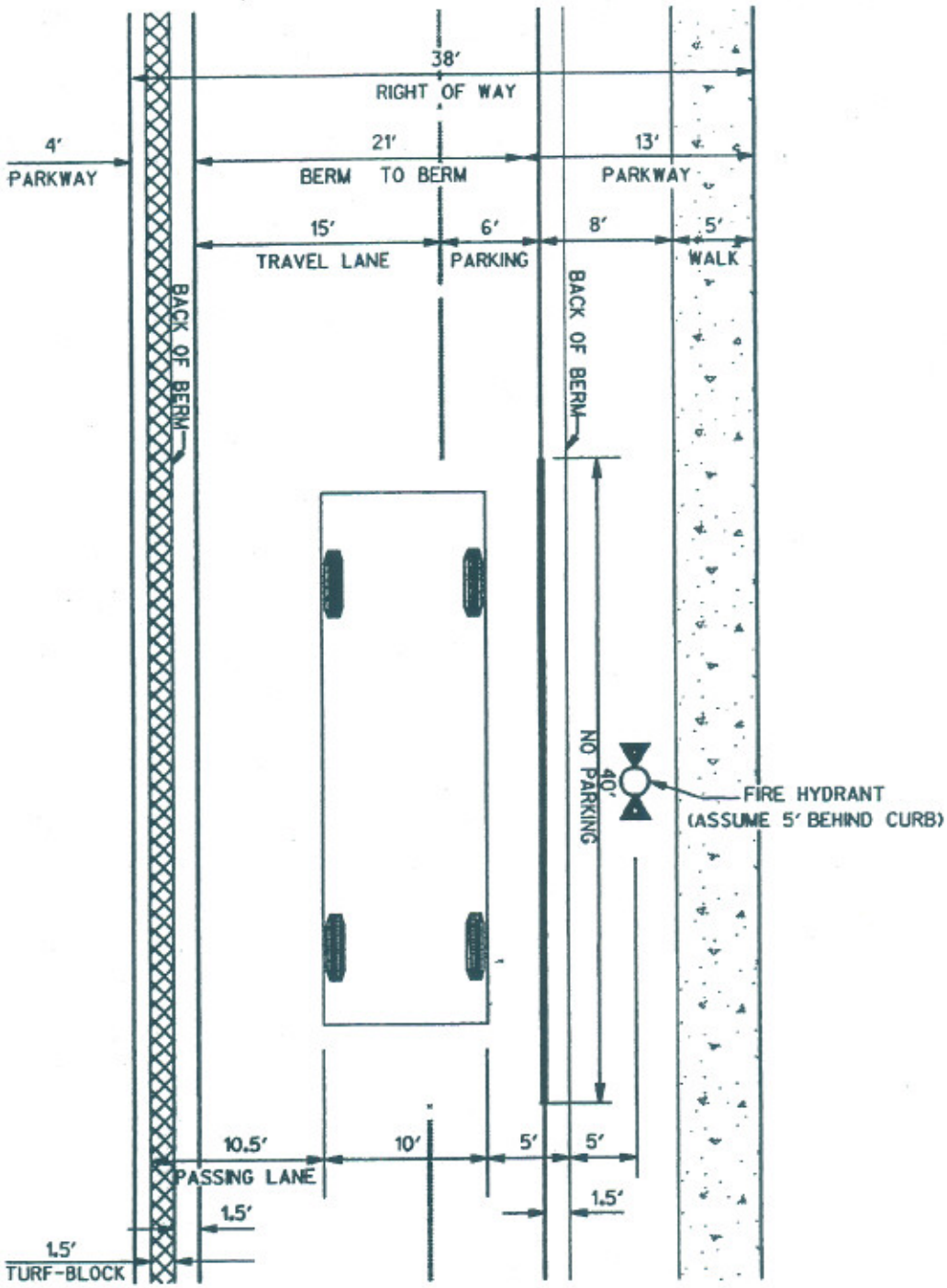


RESTRICTED PARKING AT HYDRANT CONNECTIONS FOR ONE WAY RESIDENTIAL

NOT TO SCALE

NOTE:
OCCURS ONLY AT THE ONE-WAY RESIDENTIAL STREETS AT CREEK CHANNELS AND VILLAGE CENTER.

HYDRANT TURN-OUT DETAIL



RESTRICTED PARKING AT HYDRANT CONNECTIONS FOR ONE WAY RESIDENTIAL

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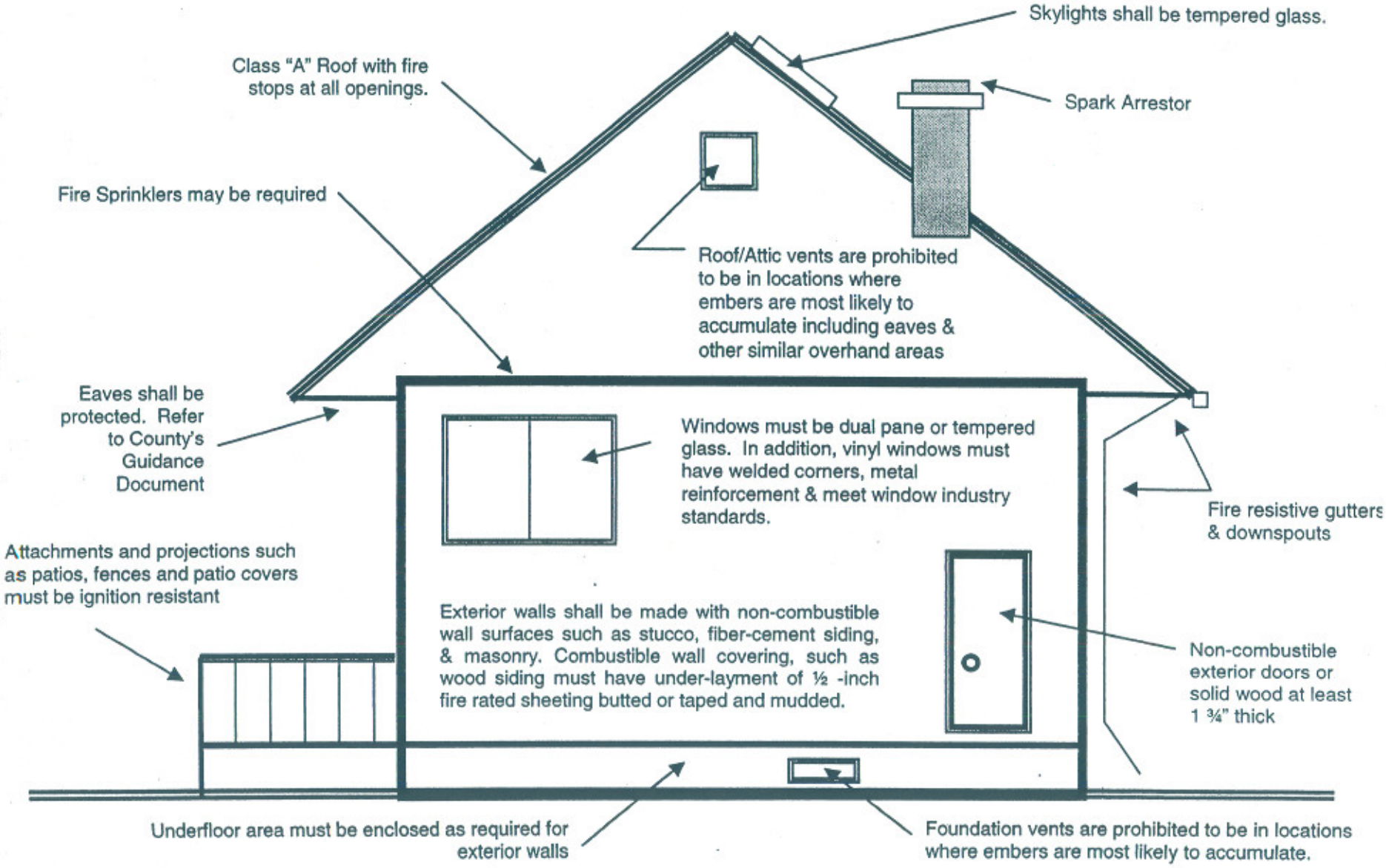
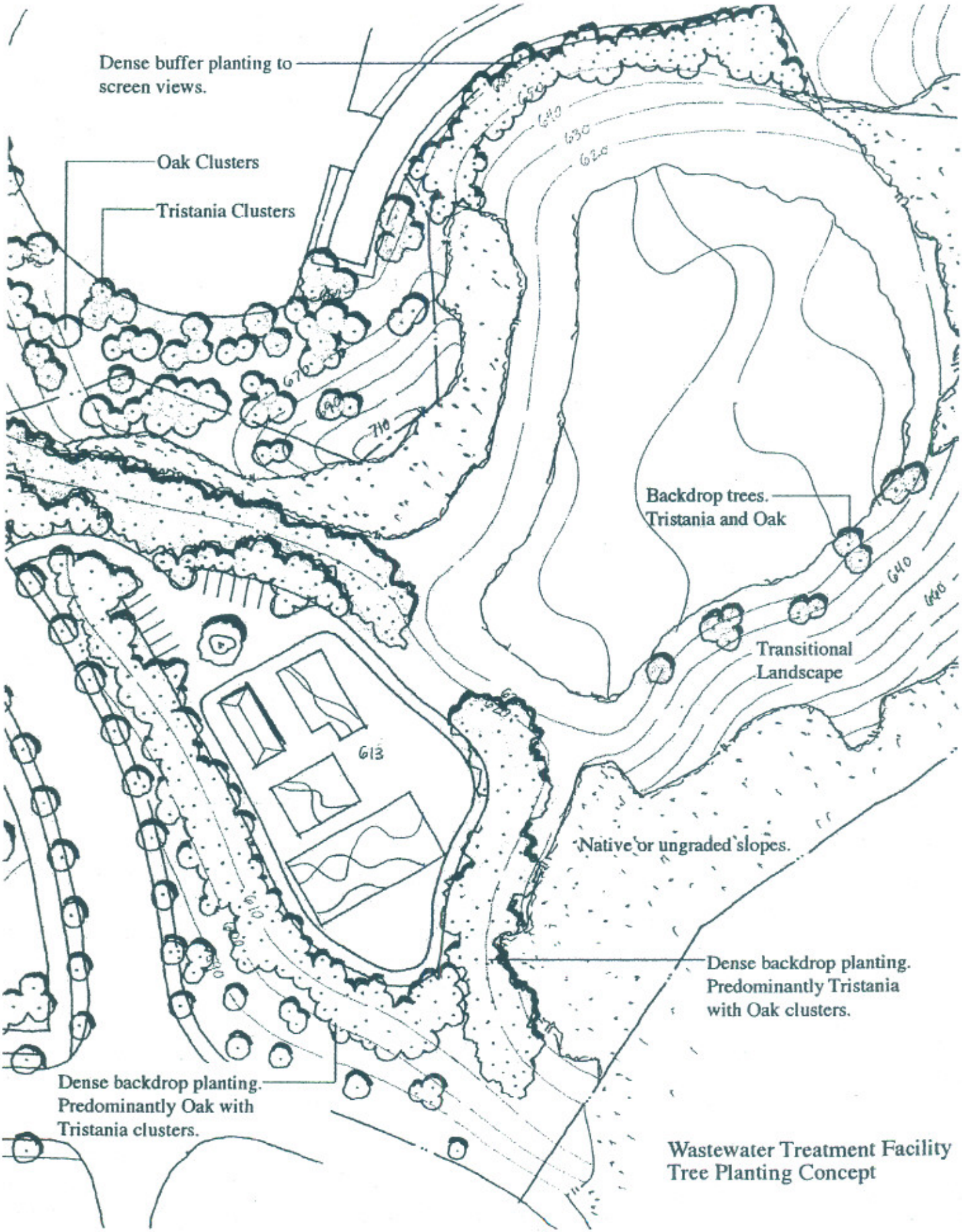
HYDRANT TURN-OUT DETAIL

Enhanced Fire Resistive Construction Requirements





Wastewater Treatment Facility
Tree Planting Concept

This concept was developed by the Landscape Architect; Burton and Associates. All trees, spacing, and maintenance shall comply with this plan.